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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/619,481

07/19/2000

Yoshihiro Hirota

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23646

7590

11/18/2003

BARNES & THORNBURG

750-17TH STREET NW

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WASHINGTON, DC 20006

EXAMINER

DEB, ANJAN K

ART UNIT

PAPER NUMBER

2858

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/619,481

Applicant(s)

HIROTA ET AL.

Examiner

Anjan K Deb

Art Unit

2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 10-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 23-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Claims 1-9, 23-25 in Paper No. 11 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 10-22, are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected Group II, III invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 11.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-9, 23-25 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1,17 of U.S. Patent No. 6,335,642 B1 in view of Poduje et al. (US 4,918,376).

Re claim 1, Hiroshima (US 6,335,642 B1) discloses (claim 1) electrostatic capacitance sensor (Impedance-to-voltage converter) comprising an electrostatic capacitance detector (capacitance target: claim 17), an operational amplifier in which a feedback impedance circuit is connected between an output terminal and an inverse input terminal of said operational amplifier, a signal line connected between said inverse input terminal of said operational amplifier and said electrostatic capacitance detector, an alternating-current signal generator connected to a non-inverse input terminal of said operational amplifier, a shield for shielding at least a portion of said signal, said shield being connected to said non-inverse input terminal of said operational amplifier and said alternating-current signal generator and detector electrode (target electrode claim 17).

Hiroshima (US 6,335,642 B1) did not claim introducer-detecting electrode and a shield electrode connected to said shield wherein at least a portion of said electrode introducer-detecting electrode is shielded by said shield electrode.

Poduje et al. (US 4,918,376) discloses capacitance sensor comprising introducer-detecting electrode 20 and shield electrode 22 (Fig. 3).

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Hiroshima (US 6,335,642 B1) by adding introducer-detecting electrode and shield electrode disclosed by Poduje et al. so that the shield electrode surrounds detector electrode so as

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to shapes field lines, and minimizes fringe capacitance as disclosed by Poduje et al. (column 2 lines 34-36).

Re claims 2-9, Hiroshima (US 6,335,642 B1) did not claim flat shaped detecting electrode and a shield electrode integrally formed with an insulator suitable for mounting.

Poduje et al. (US 4,918,376) discloses flat shaped detecting electrode 20 (plate) and a shield electrode integrally formed as a probe having an insulating layer (Fig. 3) suitable for mounting (column 2 lines 28-41).

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Hiroshima (US 6,335,642 B1) by adding an insulator layer to a capacitance detection probe comprising flat shaped detecting electrode and shield electrode integrally formed as a probe suitable for mounting.

Re claim 23-24, Hiroshima (US 6,335,642 B1) did not claim semiconductor manufacturing apparatus.

Poduje et al. (US 4,918,376) discloses capacitance probe for gauging semiconductor wafer (column 2 lines 28-30), which is considered part of semiconductor manufacturing apparatus such as for making liquid crystal display.

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Hiroshima (US 6,335,642 B1) by adding capacitance probe suitable for gauging wafer in a semiconductor manufacturing apparatus.

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Re claims 4,25, Hiroshima as modified by Poduje et al. did not expressly disclose second and third shield electrodes.

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Hiroshima (US 6,335,642 B1) by adding second and third shield electrodes for further improvement in electric field shaping and minimizing fringe capacitance.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-9, 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroshima (US 6,335,642 B1) in view of Poduje et al. (US 4,918,376).

Re claim 1, Hiroshima discloses electrostatic capacitance sensor (Impedance-to-voltage converter) comprising all of the claimed limitations as shown in Fig. 2 except expressly disclosing introducer-detecting electrode and a shield electrode connected to a shield wherein at least a portion of introducer-detecting electrode is shielded by said shield electrode.

Poduje et al. (US 4,918,376) discloses capacitance sensor comprising introducer-detecting electrode 20 shielded by shield electrode 22 (Fig. 3).

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Hiroshima by adding introducer-detecting electrode and shield electrode disclosed by

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Poduje et al. so that the shield electrode surrounds detector electrode so as to shapes field lines, and minimizes fringe capacitance (column 2 lines 34-36).

Re claims 2-3, 5-9, Hiroshima (US 6,335,642 B1) did not expressly disclose flat shaped detecting electrode and a shield electrode integrally formed with an insulator suitable for mounting.

Poduje et al. (US 4,918,376) discloses flat shaped detecting electrode 20 (plate) and a shield electrode integrally formed as a probe having an insulating layer (Fig. 3) suitable for mounting (column 2 lines 28-41).

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Hiroshima (US 6,335,642 B1) by adding an insulator layer to a capacitance detection probe comprising flat shaped detecting electrode and shield electrode integrally formed as a probe suitable for mounting.

Re claim 23-24, Hiroshima (US 6,335,642 B1) did not did not expressly disclose semiconductor manufacturing apparatus.

Poduje et al. (US 4,918,376) discloses capacitance probe for gauging semiconductor wafer (column 2 lines 28-30), which is considered part of semiconductor manufacturing apparatus such as for making liquid crystal display.

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Hiroshima (US 6,335,642 B1) by adding capacitance probe suitable for gauging wafer in a semiconductor manufacturing apparatus.

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Re claims 4,25, Hiroshima modified by Poduje et al. did not expressly disclose second and third shield electrodes.

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Hiroshima (US 6,335,642 B1) by adding second and third shield electrodes for further improvement in electric field shaping and minimizing fringe capacitance.

Pertinent Art

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

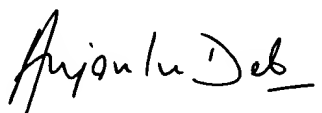
Marcus et al. (US 5,070,302) discloses capacitance sensor (probe) with mounting apparatus 10 (Fig. 1) wherein the capacitance sensor comprises detector electrode 78, ground electrode 82, insulation 120, 122 formed in layers as shown in Fig. 7.

Ohmatoi (US 4,789,822) discloses capacitance sensor comprising laminated structure having detector electrode 20,24 adhered to dielectric substrates 26,28, wherein ground electrode layer made of metal foil sheet 22 provides effective electrostatic shielding (Fig. 1).

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Anjan K. Deb whose telephone number is (703) 305-5219. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le, can be reached at (703)-308-0750.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone numbers are (703)-308-0956 and (703)-305-4900.



Anjan K. Deb

Patent Examiner

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11/13/03

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